

Remarks

Amendments to the Claims

Claims 1, 6, 8 and 16 stand rejected. Claims 11-15 and 17-44 were previously withdrawn from further consideration by the Examiner.

Previously withdrawn claims 11-15 and 17-44 have been canceled herein without prejudice.

Claim 1 has been amended herein to recite a purified mature BNP2 polypeptide comprising an amino acid sequence having at least 91% sequence identity to the amino acid sequence of SEQ ID NO:1. Claim 6 has been amended to recite that the polypeptide comprises an amino acid sequence having at least 97% identity to the amino acid sequence of SEQ ID NO:1. Claim 8 has been amended to recite that the polypeptide comprises the amino acid sequence of SEQ ID NO:1.

Claim 16 has been amended to recite a pharmaceutical composition comprising a mature BNP2 polypeptide comprising an amino acid sequence having at least 91% sequence identity to the amino acid sequence of SEQ ID NO:1, and a pharmaceutically acceptable carrier. New claims 45, 46, and 47 recite that the polypeptide comprises an amino acid sequence having at least 97% identity to the amino acid sequence of SEQ ID NO:1, that the polypeptide comprises the amino acid sequence of SEQ ID NO:1, and that the polypeptide comprises the amino acid sequence of SEQ ID NO:36, respectively.

Support for each of the present amendments is found in paragraphs [0029] and [0030] of the present application, published as US Patent Application Publication No. 2007/0281887.

No new matter has been added as a result of the present amendments to the claims. Applicants reserve the right to pursue any subject matter canceled as a result of the present amendments in future prosecution, either in this application or in one or more continuing applications.

Rejections under 35 U.S.C. §112

Enablement

The Examiner rejected claims 1, 6, 8 and 16 under 35 U.S.C. §112, first paragraph, alleging that they lack enablement.

Applicants respectfully disagree. The Examiner asserts that “the specification fails to provide sufficient guidance as to how all the polypeptides comprising fragments and variants with at least 85% identity to the amino acid sequence of SEQ ID NO:1 are related to SEQ ID NO:3 or 36.” Office Action, bottom of page 4, emphasis added. Without conceding the merits of this aspect of the rejection, Applicants have amended independent claim 1 to recite a purified mature BNP2 polypeptide comprising an amino acid sequence having at least 91% sequence identity to the amino acid sequence of SEQ ID NO:1. Independent claim 16 has also been amended to recite a pharmaceutical composition comprising a purified mature BNP2 polypeptide comprising an amino acid sequence having at least 91% sequence identity to the amino acid sequence of SEQ ID NO:1.

According to Applicants' specification, SEQ ID NO:1 is a 33 amino acid polypeptide that is specific to BNP2 in humans. Full length human BNP2 is shown in SEQ ID NO: 3, and the entire 60 amino acid mature BNP2 sequence is shown in SEQ ID NO:36 (see Figure 1A). The amino acid sequence of SEQ ID NO:1, present at the carboxy terminus of human BNP2, distinguishes human BNP2 from both human BNP1 and human BNP3. See e.g., paragraph [0005] of the present application, first three sentences: “The invention is based on the identification of novel forms of BNP generated by alternative splicing. Alternatively spliced human BNP isoforms contain the 17-amino-acid disulfide ring structure of BNP, have unique carboxy-termini, and result from distinct splicing variation. One of the isoforms, BNP2, has a unique 33 amino acid residue C-terminal extension attached to the ring.” (Emphasis added.) As shown in Example 1, expressed BNP2 RNA containing a nucleic acid sequence encoding the 33 amino acid polypeptide of SEQ ID NO:1 was detected in the left atrium of heart failure patients. Additionally, Example 5 shows that the BNP2 polypeptide comprising the 33 amino acid polypeptide of SEQ ID NO:1 was detected in heart tissue from heart failure patients.

In addition to human BNP2, Applicants' specification also describes characteristic BNP2 polypeptide sequences for a variety of other species. For example, the last two sentences of

paragraph [0030] of Applicants' specification state: "The C-terminal BNP2 sequences from human (SEQ ID NO:1) and orangutan (SEQ ID NO:7) have about **91% identity**. The C-terminal BNP2 sequences from human (SEQ ID NO:1), chimpanzee (SEQ ID NO: 9), and gorilla (SEQ ID NO:12) have about **97% identity**." (Emphasis added.)

Upon reading Applicants' specification, a person of ordinary skill in the art would have understood at the time of filing that BNP2 sequences exist in other species besides humans, and that such BNP2 sequences include C-terminal sequences that have significant homology to the BNP2-specific polypeptide sequence of SEQ ID NO:1, e.g., 91% or 97%. As such, Applicants' specification provides "sufficient guidance" as to how polypeptides having at least 91% sequence identity (and 97% sequence identity) with SEQ ID NO:1 are related to SEQ ID NOs: 3 and 36. A person of ordinary skill in the art would have been able to make and use a polypeptide having at least 91% sequence identity (and 97% sequence identity) to SEQ ID NO:1 at the time the application was filed without undue experimentation.

In light of the above remarks, Applicants respectfully request that the rejection under 35 U.S.C. § 112 for lack of enablement be withdrawn.

Written Description

The Examiner rejected claims 1, 6, 8, and 16 under 35 U.S.C. §112, first paragraph, alleging that they fail to comply with the written description requirement.

Applicants respectfully disagree. Upon reading Applicants' specification, a person of ordinary skill in the art would have understood Applicants to be in possession of the previously claimed polypeptides. Nevertheless, solely in order to advance prosecution, Applicants have amended independent claim 1 to recite a purified mature BNP2 polypeptide comprising an amino acid sequence having at least 91% sequence identity to the amino acid sequence of SEQ ID NO:1. Independent claim 16 has also been amended herein to recite a pharmaceutical composition comprising a purified mature BNP2 polypeptide comprising an amino acid sequence having at least 91% sequence identity to the amino acid sequence of SEQ ID NO:1.

Thus, the presently amended claims recite (as did the previously pending claims) the polypeptide solely in terms of structure, i.e., polypeptides comprising an amino acid sequence having at least 91% identity to SEQ ID NO:1. In this regard, Applicants point the Examiner to

Example 11 of the USPTO Written Description Training Materials, Revision 1, dated March 25, 2008. Claim 1 of Example 11 recites a nucleic acid sequence encoding a polypeptide in terms of structure only, i.e., in terms of percent identity to a reference polypeptide sequence. Except for reciting nucleic acid molecules that encode polypeptides, claim 1 of Example 11 is largely identical to the currently pending claims, which directly recite polypeptides in terms of structure only, i.e., in terms of percent identity to the amino acid sequence of SEQ ID NO:1. The Written Description Training Materials are unambiguous in concluding that such claims satisfy the written description requirement of 35 U.S.C. § 112. Moreover, Applicants' specification provides even more support for the pending claims than was provided in Example 11. In the fact pattern of Example 11, the specification only described the reference polypeptide, and did not provide a description of any other polypeptides that fell within the claimed genus. In contrast, Applicants' specification describes not only SEQ ID NO:1, but also several other members of the claimed genus, including sequences from orangutan (SEQ ID NO:7, 91% identical), chimpanzee (SEQ ID NO:9, 97% identical), and gorilla (SEQ ID NO:12, 97% identical). Thus, the presently pending claims clearly comport with the exemplary standards set forth in the Written Description Training Materials.

In light of the above remarks, Applicants respectfully request that the rejection under 35 U.S.C. § 112 for lack of written description be withdrawn.

Claim Objections

Claim 10 was objected to as being dependent upon a rejected base claim. In light of the present amendments and remarks, Applicants submit that this objection is rendered moot, and respectfully requests its withdrawal.

Conclusion

In light of the present amendments and remarks, Applicants respectfully request reconsideration and allowance of the presently presented claims. If the Examiner feels that a telephone call would advance prosecution or expedite allowance of the present case, the undersigned can be reached at 612-766-2071.

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Serial No. : 10/561,014
Filed : June 6, 2006
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Attorney's Docket No.: 07039-0409US1

Please apply any applicable charges, or credit any overpayments, to deposit account No. 06-1050, referencing Attorney Docket No. 07039-0409US1.

Respectfully submitted,

Date: April 29, 2010

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